

Subject Index

A

Acetic acid, resistance of biofilms 158
Acinetobacter baumannii 151
Acticoat 164, 168
Actinobacillus actinomycetemcomitans 18
N-Acyl homoserine lactone (AHLs) 5, 14, 51
Acyl-ACP 52
Acylacyl carrier protein (acyl-ACP) 17
Acylated homoserine lactones (HSLs) 55
Acyl-coenzyme A 17
S-Adenosylmethionine (SAM) 17, 52
AgrA/AgrB/AgrC 24, 25
Agr-autoinducing Peptide (AIP) 24, 69, 122
Agrobacterium tumefaciens 41
AHL signal generation, inhibition 52
AHLs 5, 14, 42, 51, 80
–, analogs 57
–, anti-AHL agents 85
AI-2 18, 66
AI-3 18
AIPs 24, 69, 122
Albomycin 152
Allolysis, QS-induced 134
Amikacin 3
Amoeba-plate-killing assays 109
Amputation 157
Animal models 109
Anti-AHL agents 85
Antibiotics, inherent bacterial resistance 5
–, resistance 5
–, –, biofilms 6
Antifouling 60
Anti-LuxI (homolog) agents 86
Anti-LuxR (homolog) agents 85
Antimicrobial chemotherapy 1
Anti-RAP 127
Apligraf 165
Arginine deiminase (ADI) 7
Arginine repressor 8

Arthrobacter sp. 55
Aureolysin precursor, zinc metalloproteinase 22, 40
Autoinducers 13, 14, 18
Autoinducing peptide (AIPs) 24, 69, 122
Autolysin LytA 134
Azithromycin 52

B

Bacillus cereus 55
Bacillus mycoides 55
Bacillus thurengensis 55
Bacteremia 1
Bacterial adherence 4
Bacterial drug resistance 1
Bacteriocin 135
Batch cultures, anti-QS treatment 86
p-Benzoquinone 59
Beta-galactosidase 47
Beta-lactamases 5
–, reporter assay 43
Beta-lactams, multidrug efflux pumps 5
Biocides, resistance of biofilms 158
Biofilms, definition 3
–, maturation 4
Bioluminescence 47, 120
Bioluminescence, *Vibrio harveyi* 18
Bleach, resistance of biofilms 158
N-Butanoyl-L-homoserine lactone (BHL) 15
–, modeling 81

C

Caenorhabditis elegans 109, 121
Campylobacter jejuni 18
Capsular polysaccharide synthesis enzymes 22, 40
Carbamate kinase (*arcC*) 7
Carbapenem 67
Carrots, *Erwinia* soft rot disease 55
Cathepsins 149

Cell death, CSP-induced, *S. mutans* 135
 –, population-density-dependent 134
 Cell-to-cell communication 5, 13
 Cellular automata 80
 Cellulitis infection model 109, 111, 125
 Central venous catheter infection model 109, 113
 Cephalosporins 2
 CF transmembrane conductance regulator 141
 Chemokine trypsin-like protease activity 138
 Chitinases 39
 Chloramphenicol 2
 –, multidrug efflux pumps 5
 Chloride ion channel 141
Chromobacterium violaceum 40, 45
 Chronic wounds 157
 CIP pheromone 136
 Ciprofloxacin 2
Citrobacter spp. 164
 Clindamycin 2
 Colicin 136
 Colistin 3
 Colonization, critical 158
Commomamonas sp. 55
 Competence-stimulating peptide (CSP) 70, 132
 Contamination-infection continuum 158
 Continuum models 80
 Critical colonization 158
Cryptococcus neoformans 110
 CSP, therapeutic agents 136
 Cubicin 164
 CVCs 113
 Cyanide 39
 Cysteine protease 22, 40
 Cystic fibrosis 28
 –, iron 141
 –, transmembrane conductance regulator 141

D

Daptomycin 168
 Defensin-derived antimicrobial peptide G2 136
 Defensins 144
Delisea pulchra 60
 Dental plaque 132
 Diabetic foot ulcer 164
Dictyostelium discoideum 110
 Downregulated cells 82
 Drug resistance 1

E

E. coli, biofilm formation 61, 164
E. coli (EHEC) O157:H7, enterohemorrhagic 18
E. coli O127:H6, enteropathogenic 18
E. coli W3110 18
 ECF sigma factors 144, 147
 Egg plant, *Erwinia* soft rot disease 55
 Elastase 39, 55, 148
 Endocarditis model 114
Enterobacter cloacae 164
 Enterobactin 143
 Enterococci, group D 164
Erwinia caratovora 52, 67
 Erythromycin 2, 52
 Extracellular polymeric substance (EPS) 158

F

Fas (fibronectin/fibrinogen binding/hemolytic activity/streptokinase regulator) 26
 Fasciitis, necrotizing 137
 Ferric ammonium citrate 147
 Ferric citrate 143
 Ferrichrome transport 143
 Ferrioxamine 143
 Ferritin 149
 Fimbrilides 60
 Fleming 1
 Fluoroquinolone resistance, *P. aeruginosa* 2
 Fratricide 134
 Furanones, bioluminescence 120
 –, brominated 16, 60
 –, compounds, *S. antibioticus* 60
 –, halogenated 85
 –, toxicity 68
 Furanosyl borate diester 18

G

Gallium-porphyrin 152
 Garlic extract 54, 68, 121
 GAS 137
 Gentamicin 3
 –, multidrug efflux pumps 5
 Glycerol ester hydrolase 22, 40
 Graft prosthesis 109, 112
 Gram-negative bacteria, QS inhibitors 51
 Group A streptococcus (GAS) 137
 Growth 80
 Gyrase 6

H

Heavy metals 6
Helicobacter pylori 8
 Heme 143
 Hemolysin 21, 25, 40
N-Hexanoyl homoserine lactone (C6-HSL) 45
 Histidine kinase (HK) 133
 Holing-like proteins 22, 40
 Homoserine lactones, acylated (HSLs) 55
 Hospital-acquired infections 1
 HSL donor 17
 HSLs 55
 Hyaluronate lyase precursor 22, 40
 Hydrofera Blue 164
 Hydrogen cyanide 55
 Hydrogen peroxide, resistance of biofilms 158

I

Imipenem, multidrug efflux pumps 5
 Immune system 68, 167
 Implant infection 162
 Indium 152
 Indole 59
 Infection, QS modulation, group A
 Streptococcus 137
 Initial attachment 4
 Interferon 19
 Interleukin 138
 Iodosorb 164
 Iron 142
 –, acquisition/homeostasis 142
 –, regulation 143

K

Klebsiella pneumoniae 55, 147, 152

L

Lactoferrin 142, 144, 148, 157, 166
 –, wound care 167
 Lactonases 56, 85
 Lactonolysis 56
Laminaria digitata, hypobromous/hypochlorous acids 55
 Lectins 39
Legionella pneumophila 110
 Limb amputation 157
 Locus of enterocyte effacement (LEE) 18
 LuxI homologs 52

LuxI synthases 17
 Lysozyme 134, 144

M

Macrolides, AHL inhibition, LuxI homologs 52
 –, multidrug efflux pumps 5
 Mathematical models 79
 Matrix metalloprotease, neutrophils 160
 Methicillin 2
 Microcolony formation 4
 MMP8 160
 Movement 80
 MRSA 2, 164, 168
 Multidrug efflux pumps 5
 Mutacins 135
Mycobacterium smegmatis 152
Mycobacterium spp. 110

N

Nematode-killing assay 109, 110
 Neutropenia 2
 3-Nitrobenzene-sulfonamide 59
 Nitrocefin 44
 4-Nitropyridine-*N*-oxide (4-NPO) 59
 Nosocomial infections 1

O

Oasis 166
 Ornithine carbamoyltransferase 8
 Ornithine transcarbamylase (*arcB*) 7
 Osteomyelitis model 115, 164
 3-Oxo-C12 HSL 19
 –, modelling 81
 Oxo-C8 HSL 42
N-(3-Oxododecanoyl)-L-homoserine lactone (OdDHL) 15
N-3-(Oxohexanoyl)-L-homoserine lactone (OHHL) 65
 Oxygen radicals 147, 152

P

Patulin 60
 Penicillic acid 60
 Penicillin 1, 6, 54
 Penicillin-binding proteins (PBPs) 6
 Peptide-based QS 132
 Peptidoglycan biosynthesis 6
 pH 55
 Pharyngitis (strep throat) 137
 Phenazines 39

1-Phosphatidylinositol phosphodiesterase
22, 40
Photorhabdus luminescens, antibiotic
production 18
Planktonic concept 3, 7, 60, 70, 82, 119, 132,
146, 158, 160
Plaque, dental 132
Polymorphonuclear leukocytes (PMNs) 68,
111
Population density 82
Population-density-dependent cell death 134
Potato, *Erwinia* soft rot disease 55
Prodigiosin pigment production 40
Promogran 164
Protease, activity, lactoferrin 167
–, alkaline 39, 148
Proteus mirabilis 8, 67
Pseudomonas aeruginosa 2, 5, 14, 80
–, iron 141
–, biofilm formation 63
–, pH 52
Pseudomonas aureofaciens 41, 45
Pseudomonas fluorescens 151
Pulmonary dose-response model 121
Pulmonary infection model 109, 111
Pyochelin 143
Pyocyanin 55, 59
Pyoverdine 143, 150
Pyrimidine nucleotide biosynthetic (*pyr*)
pathway 8

Q

QS autoinducers (QSA) 27
QSI selector (QSI) 46
Quinolones, multidrug efflux pumps 5
Quorum sensing (QS) 13, 14
–, peptide-based 132
Quorum signal inhibition, bioassay 43
–, detection 44
Quorum-signal inhibitors (QSIs) 39, 163

R

Rabbit endocarditis model 114
Rabbit osteomyelitis model 115
RAP 21, 122
RAP-binding peptides (RBPs) 126
Rat graft prosthesis model 112
Release/sloughing 4
Response regulation 17
Response regulator (RR) 133
Rhamnolipids 39, 55
RhIR QS system 110

Rhodococcus sp. 55
RNAIII 25
RNAIII-activating protein (RAP) 21, 122
RNAIII-inhibiting peptide (RIP) 69, 123, 157

S

Salmonella typhimurium 15
Scandium 152
Sepsis mouse model 136
Serine protease, lactoferrin 167
Serratia liquefaciens MG44 40
Serratia marcescens ATCC 39006 40
Siderophores 143, 153
Sigma factor B (SigB) 8
Signal reception 17
Signal receptor, inhibition 57
SiIC 137
SiICR peptide 137
Silver gels 164, 168
Sinorhizobium meliloti 41
SQS 2 24
Staphopain-cysteine proteinase 22, 40
Staphylococcal accessory regulator (SarA) 8
Staphylococcal serine protease (V8 protease)
22, 40
Staphylococcus aureus 1, 5, 14, 81
–, methicillin-resistant 152
Staphylococcus epidermidis 1, 164
Staphylococcus saprophyticus 8
Streptococcus gordonii 18, 28, 132
Streptococcus mutans 131, 151
Streptococcus pneumoniae 131
–, competence-stimulating peptide 70
Streptococcus pyogenes 7, 18, 26, 131, 137
Streptococcus salivarius 7
Streptomyces sp. 55
Sulfamethoxazole 2
Sulfate-reducing bacteria (SRB) 71

T

T1 120
Tetracycline, multidrug efflux pumps 5
Tobramycin 3, 7, 64
Topoisomerase IV 6
Transferrin 142, 148, 167
TRAP 8, 21, 123
Triacylglycerol lipase precursor 22, 40
2,4,5-Tri-bromo-imidazole 59
Trimethoprim, multidrug efflux pumps 5
Tumor necrosis factor alpha (TNF- α) 19

U

Ulcer, neutrophils 161
Upregulated cells 83
Ureaplasma urealyticum 8
Urease (urea amidohydrolase) 8

V

Vanadium, multidrug efflux pumps 5
Vancomycin 6
Vancomycin-resistant enterococci (VRE) 2
Variovorax paradoxus 56
Vibrio cholerae 18, 151
Vibrio fischeri QS system 15
Vibrio harveyi D1 40
Vibrio vulnificus 18
VISA (vancomycin-intermediate *S. aureus*) 6

W

Wound healing 157

X

X-propyl-dipeptidyl aminopeptidase 138

Y

Yersinia enterocolitica 152
Yersinia pseudotuberculosis 52

Z

Zinc metalloproteinase aureolysin precursor
22, 40